



ASIA

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of :

Stefan WILHELM et al.

Group Art Unit: 3753

Serial No.: 10/091,350

Examiner: L. V. Ciric

Filed: March 6, 2002

For: HEAT EXCHANGER

BRIEF ON APPEAL UNDER 37 C.F.R. § 41.37

MAIL STOP APPEAL BRIEF - PATENTS

Commissioner for Patents

P.O. Box 1450

ALEXANDRIA, VA 22313-1450

Sir:

Further to the Notice of Appeal filed February 1, 2006, attached herewith is Appellants' Brief on Appeal. Pursuant to 37 CFR § 41.20(b)(2), attached is a check for \$500 for the filing of this Brief.

This is an appeal from the decision of the Examiner finally rejecting claims 1-23.

(1) REAL PARTY IN INTEREST

The application is assigned of record to Linde AG of Wiesbaden, Germany, who is the real party in interest herein. The assignment is recorded at Reel 012817/Frame 0038.

(2) RELATED APPEALS AND INTERFERENCES

Appellants, their legal representative and the assignee are not aware of any related appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in the instant appeal.

(3) STATUS OF THE CLAIMS

Claims rejected: 1-23;

Claims allowed: None;

Claims canceled: 24;

Claims withdrawn: None;

Claims objected to: None;

Claims on Appeal: claims 1-23. A copy of the claims on appeal is provided in the attached Claim Appendix.

(4) STATUS OF AMENDMENTS AFTER FINAL

No Amendments under 37 CFR §1.116 have been filed subsequent to the Final Office Action of November 1, 2005.

(5) SUMMARY OF THE CLAIMED SUBJECT MATTER

Appellants' invention is directed to a heat exchanger that comprises at least one heat exchanger block (see reference numeral 1 in the figures), an insulating vessel which surrounds the heat exchanger block (see reference numeral 11 in the figures), pipes connected to said heat exchanger block for transporting fluids to and from the heat exchanger block (see reference numerals 12 and 14 in the figures), and a securing means (see reference numerals 3, 4, 5, and 7 in the figures, and page 5, lines 11-27). The securing means permit thermally produced changes in the lengths of the pipes connected to the heat exchange block to be compensated for by movement of the heat exchanger block. See, for example, page 1, lines 5-10, page 2, lines 36-39, and page 3, lines 1-7. As defined in claim 9, the invention also relates to an air fractionation plant comprising such a heat exchanger as a principal heat exchanger. See also Figure 7.

Also, as recited in independent claims 12 and 14, the invention also relates to a heat exchanger comprising at least two heat exchanger blocks (1), as well as an insulating vessel (11), securing means (3, 4, 5, and 7), and feed and/or discharge pipes (12 and 14), as discussed above. See, for example, page 1, lines 5-10, page 2, lines 36-39, and page 3, lines 1-7. In claim 12, the heat exchanger blocks (1) are said to be suspended so that they can

move freely above their centers of gravity. See, e.g., page 3, lines 9-14. In claim 14, the securing means is said to have joints (5, 7), and two axes of rotation (6, 9) which lie perpendicular to one another. See, e.g., page 4, lines 20-25, and page 5, lines 30-32.

As described in claim 18, the invention also relates to a heat exchanger comprising at least one heat exchanger block (1) having an upper end and a lower end, an insulating vessel (11) which surrounds the heat exchanger block, and pipes connected to said heat exchanger block for transporting fluids to and from the heat exchanger block (12 and 14). Further, the heat exchanger comprises means for securing (3, 4, 5, and 7) connected to the upper end of the heat exchanger block whereby the heat exchanger block hangs in the insulating vessel, and the means for securing means permits the lower end of the heat exchange block to move in at least two spatial directions, and the exchange block can move freely above its center of gravity. See, e.g., page 1, lines 5-10, page 2, lines 36-39, page 3, lines 1-7, and page 3, lines 9-14.

As described in claims 19 and 23, the invention further relates to a heat exchanger and an air fractionation plant comprising such a heat exchanger, respectively. The heat exchanger comprises at least one heat exchanger block (1) having an upper end and a lower end, an insulating vessel (11), pipes connected to the upper end and pipes connect to the lower end of the heat exchanger block for transporting fluids to and from the heat exchanger block (12 and 14), first and second support plates (3) attached to the upper end of the heat exchange block and which are pivotally attached (5) to a third support plate (4), which in turn is attached to a support within the insulating vessel by a joint (7). This joint permits the third support plate and the heat exchange block to pivot about an axis perpendicular to the plane of the third support plate. See, e.g., page 1, lines 5-10, page 2, lines 36-39, page 3, lines 1-7, page 5, lines 10-34.

(6) GROUNDS OF REJECTION TO BE REVIEWS ON APPEAL

The grounds of rejections that are on Appeal are:

- (1) whether claims 1-3, 6-10, 12-14, 17-20 and 23 of the application are unpatentable under 35 U.S.C. §102(a) as being obvious in view of allegedly admitted prior art; and
- (2) whether claims 4, 5, 11, 15, 16, and 22 of the application are unpatentable under

35 U.S.C. §103 as being obvious in view of allegedly admitted prior art.

(7) APPELLANTS' ARGUMENTS

Rejection under 35 USC §102

Claims 1-3, 6-10, 12-14, 17-20, and 23 are rejected as allegedly being anticipated in view of "admitted prior art."

This rejection appeared for the first time in the Office Action of May 20, 2005, after the Examiner had already indicated in that claims 1, 3-8, and 11-22 were allowed and that claims 2, 9, 10, and 23 recite allowable subject matter (see Office Action of February 10, 2005). In the Office Action of May 20, 2005, the Examiner argued that:

Based on the disclosure, the "securing means for securing the heat exchanger block hanging in the insulating vessel" as recited in the Jepson preamble is interpreted under 35 U.S.C. 112, sixth paragraph, as encompassing at least two aluminum support plates 3, a substantially triangular steel plate 4 or a steel support which is articulately connected to the aluminum plates 3 at two corners by bolts or joints 5, and a joint 7 at the third corner of the steel plate which allows movement in the plane of the steel plate or about an axis perpendicular to the steel plate, and any other disclosed equivalents thereof.

Based on this interpretation and the recitation of securing means in the Jepson preamble, the Examiner improperly concluded that the inventive securing means recited in the body of appellants' claims was admitted prior art.

For the Board's convenience, claim 1 as pending at the time of the May 20, 2005 Office Action is reproduced below:

1. In a heat exchanger comprising at least one heat exchanger block, an insulating vessel which surrounds the heat exchanger block, pipes connected to said heat exchanger block for transporting fluids to and from said heat exchanger block, and **securing means** for securing the heat exchanger block hanging in the insulating vessel, **the improvement wherein the heat exchanger block (1) is arranged movably in the insulating vessel whereby said means for securing permit thermally produced changes in the**

lengths of said pipes connected to said heat exchange block to be compensated for by movement of said heat exchanger block. (emphasis added)

Appellants respectfully submit that the Examiner's interpretation of the securing means is improper. The Jepson preamble is an implied admission as to features within the prior art. However, the improvement clause of a Jepson claim is not an implied admission as to prior art, but instead is an express assertion as to what is an improvement of the prior art. Thus, the logical interpretation of this claim is that certain securing means did exist in the prior art, but that a securing means having the properties recited in the improvement clause was not admitted to be in the prior art. It would be improper to give the implied prior art effect to the preamble portion of the claim while not giving the asserted inventive effect to the improvement clause.

This interpretation is akin to asserting that Velcro, when first invented, was somehow admitted to be in the prior art because fastening means (such as buttons and zippers) were admitted to be in the prior art.

The interpretation asserted by Appellants, i.e., that certain securing means did exist in the prior art, but the securing means described in the improvement clause was not in the prior art, is entirely consistent with Appellant's disclosure. In the specification, it is acknowledged that various "methods are known for securing the heat exchanger or the individual heat exchanger blocks in the insulating vessel." See, page 1, lines 28-30. Thereafter, the specification describes some of these known methods for securing the heat exchanger or the individual heat exchanger blocks in the insulating vessel. See, e.g., page 1, line 32-page 2, line 9.

But, thereafter, the specification describes the inventive securing means. For example, at page 2, lines 27-31, the specification discloses that an object of the invention is to "develop a heat exchanger which is secured in the insulating vessel in such a way that the piping becomes as simple as possible and the line loops for shrinkage compensation are avoided or at least minimized."

Further, at page 2, line 35-page 3, line 14, the specification discloses that, **according to the invention**, "the heat exchanger block is arranged movably in the insulating vessel;" that "the heat exchanger block is secured in such a way that thermally produced changes in the

pipelines connected to the heat exchanger block are compensated for by a change in position of the block;" and that the heat exchanger is preferably "secured in the insulating vessel in such a way that its lower end can move in at least two spatial directions." One of ordinary skill in the art would clearly not construe such disclosure to be admissions as to the prior art.

In addition, the specification at page 4, lines 13-18 describes advantages associated with the "inventive way of securing the heat exchanger blocks." This again demonstrates that the specification clearly undeniably characterizes the securing means recited in the improvement clause of the claim as part of the invention, **not the prior art**.

In the Detailed Description of the Drawings at pages 5-6, the specification describes the embodiments illustrated in Figures 1 and 2. These embodiments do show two support plates 3, a substantially triangular plate 4 articulately connected to the plates 3 at two corners by bolts or joints 5, and a joint 7 at the third corner of plate 4. But, nowhere within the specification does it describe such structure as a prior art securing means. Instead, Figures 1 and 2 are identified as depicting suspension of a heat exchanger in accordance with the invention. See the Brief Description of the Drawings at the bottom of page 4.

Thus, contrary to the rejection in the Office Action of May 20, 2006, the specification clearly does not admit that the securing means described in the improvement clause of claim 1 pending on May 20, 2005 is prior art. Instead, the specification clearly identifies this securing means as part of the invention, i.e., an improvement over the prior art securing means.

While use of the term "means" in a claim may raise a presumption that the term is to be interpreted in accordance with 35 USC 112, sixth paragraph, this presumption is rebuttable. Moreover, the decision as to whether 35 USC 112, sixth paragraph, will apply must take into account what the appellants have disclosed in their specification. See, e.g., *Cole v. Kimberley-Clark Corp.*, 41 USPQ2d 1001, 1006 (Fed. Cir. 1996), where the court stated: "We decide on an element-by-element basis, based upon the patent and its prosecution history, whether §112, ¶ 6 applies." If, as in the instant case, the specification and claims clearly indicate that a certain element of the claim is part of the invention and not part of the prior art, it is improper to construe that element as admitted prior art based upon the identification of a general class of structural elements as a "means" in a Jepson preamble.

In an effort to resolve this issue, appellants amended the claims to delete "securing means" from the Jepson preamble. See the claims listed in the attached Claims Appendix.

Without a recitation of "securing means" in the Jepson preamble, there is no basis for arguing that appellants have somehow admitted that its inventive securing means is in the prior art.

Unfortunately, the Examiner still maintained the rejection based upon alleged admitted prior art. See the Final Office Action of November 11, 2005. In responding to appellants arguments, the Examiner argued that "the rejected Jepson claims in the instant application fail to recite any particular type of securing means other than the securing means used in the prior art." Appellants do not know what "prior art" the Examiner is referring to, since there is no admission in the Jepson preamble as to prior art securing means. There are prior art securing means discussed in appellants' specification at page 1, line 27-page 2, line 26, but these prior art securing means do not have the structure and/or function capabilities of the securing means recited in appellants' claims.

The Examiner then states that the disclosure at page 1, line 25-line 26 does not describe prior art securing means. This assertion stems from a typo in appellants' prior arguments where "page 1, line 25-line 26" was intended to read page 1, line 25-page 2, line 26. It is noted that the very next sentence after page 1, lines 25-26 states that "Various methods are known for securing the heat exchanger or the individual heat exchanger blocks in the insulating vessel."

With respect to deletion of the securing means from the Jepson preamble, the Examiner argued that "attorney arguments cannot take the place of evidence in cases, where, for example, the arguments relate to allegations that the prior art was derived from the applicants." Appellants do not understand the Examiner's point.

First, attorney arguments are not taking the place of evidence in this regard. **It is a fact, not mere argument**, that the claims do not recite securing means in the Jepson preamble and thus there is no implied admission that the securing means recited in the claims is within the prior art. Moreover, it is a fact that the Examiner has not shown any other basis for asserting that the appellants have made any admission that the claimed securing means is admitted to be prior art. **Thus, the Examiner has failed to identify the "admitted prior art" relied on in the rejection.**

Secondly, appellants have not presented attorney arguments that the "prior art" was derived from the appellants. Appellants' invention is not prior art with respect to appellants. Appellants have not admitted that there improved securing means is prior art. Instead,

appellants have identified there inventive securing means as an improvement over the prior art.

The Examiner further argues that the arguments presented by the appellants do not specifically point out "how the language of the claims patentably distinguishes them from the references." Appellants respond by pointing out that there are no references relied on in the rejection. The rejection refers to admitted prior art, but there is no admission as to prior art based on a Jepson preamble. If the rejection is relying on some other assertion of admitted prior art, the Examiner fails to point where such an admission occurs. The securing means recited in the claims is part of appellants' invention. The appellants cannot (and need not) distinguish their invention over there own invention.

Rejection under 35 USC §103


Claims 4, 5, 11, 15, 16, 21, and 22 are rejected as allegedly being obvious in view of "admitted prior art."

This rejection relies on the same "admitted prior art" relied on in the ejection under 35 USC §102, discussed above. This rejection is thus traversed for the same reasons as discussed above, for example, the securing means recited in appellants' claims are not admitted prior art, and the rejection fails to identify what admission of prior art is being relied on in the rejection.

(8) CONCLUSION

For all of the above reasons, it is urged that the decision of the Examiner rejecting claims 1-23, on appeal, is in error and should be reversed.

Respectfully submitted,



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Filed: March 31, 2006

CLAIMS APPENDIX

Listing of Claims:

1. (Previously Presented): In a heat exchanger comprising at least one heat exchanger block, an insulating vessel which surrounds the heat exchanger block, and pipes connected to said heat exchanger block for transporting fluids to and from said heat exchanger block, the improvement wherein said heat exchanger further comprises securing means for securing the heat exchanger block hanging in the insulating vessel, and wherein said means for securing said heat exchanger block permit thermally produced changes in the lengths of said pipes connected to said heat exchange block to be compensated for by movement of said heat exchanger block.
2. (Previously Presented): A heat exchanger according to Claim 1, wherein said heat exchanger block has a lower end and wherein the lower end of the heat exchanger block (1) can move in at least two spatial directions.
3. (Previously Presented): A heat exchanger according to Claim 1, wherein the heat exchanger block (1) is suspended in such a manner that it can move freely above its center of gravity.
4. (Previously Presented): A heat exchanger according to Claim 1, wherein the heat exchanger comprises at least two heat exchanger blocks (1).
5. (Previously Presented): A heat exchanger according to Claim 4, wherein said pipes connected to said heat exchange block comprise feed and/or discharge lines which lead into a common connection line.
6. (Previously Presented): A heat exchanger according to Claim 1, wherein the securing means have joints (5, 7).

7. (Previously Presented): A heat exchanger according to Claim 6, wherein the securing means have two axes of rotation (6, 9) which lie perpendicular to one another.

8. (Previously Presented): A heat exchanger according to Claim 1, wherein the securing means have a first element (3), which is fixedly connected to the heat exchanger block (1), and a second element (4), which is articulately connected to the first element (3), the second element (4) being articulately secured in the insulating vessel.

9. (Previously Presented): In a low-temperature air fractionation plant comprising a principal heat exchanger and at least one fractionation column, the improvement wherein said principal heat exchanger comprises:

at least one heat exchanger block, an insulating vessel which surrounds the heat exchanger block, pipes connected to said heat exchanger block for transporting fluids to and from said heat exchanger block, and securing means for securing the heat exchanger block hanging in the insulating vessel, wherein said means for securing said heat exchanger block permit thermally produced changes in the lengths of said pipes connected to said heat exchange block to be compensated for by movement of said heat exchanger block.

10. (Previously Presented): A heat exchanger according to Claim 2, wherein the heat exchanger block (1) is suspended in such a manner that it can move freely above its center of gravity.

11. (Previously Presented): A heat exchanger according to Claim 4, comprising at least three heat exchanger blocks.

12. (Previously Presented): In a heat exchanger comprising at least one heat exchanger block, an insulating vessel which surrounds the heat exchanger block, the improvement wherein

said heat exchanger further comprises securing means for securing the heat exchanger block hanging in the insulating vessel, and the heat exchanger comprises at least two heat exchanger blocks (1), the heat exchanger blocks (1) have feed and/or discharge pipes which

lead into a common connection line, and the heat exchanger blocks (1) are suspended so that they can move freely above their centers of gravity, and

said heat exchanger further comprises securing means for securing the heat exchanger blocks hanging in the insulating vessel, and said means for securing said heat exchanger blocks permit thermally produced changes in the lengths of said feed and/or discharge pipes connected to said heat exchange blocks to be compensated for by movement of said heat exchanger blocks.

13. (Previously Presented): A heat exchanger according to Claim 12, wherein each of said heat exchanger blocks have a lower end, and the lower end of each heat exchanger block (1) can move in at least two spatial directions.

14. (Previously Presented): In a heat exchanger comprising at least one heat exchanger block, an insulating vessel which surrounds the heat exchanger block, the improvement wherein

the heat exchanger comprises at least two heat exchanger blocks (1), the heat exchanger blocks (1) have feed and/or discharge pipes which lead into a common connection line, the securing means have joints (5, 7), and the securing means have two axes of rotation (6, 9) which lie perpendicular to one another, and

said heat exchanger further comprises securing means for securing the heat exchanger blocks hanging in the insulating vessel, and said means for securing said heat exchanger blocks permit thermally produced changes in the lengths of said feed and/or discharge pipes connected to said heat exchange blocks to be compensated for by movement of said heat exchanger blocks.

15. (Previously Presented): A heat exchanger according to claim 1, wherein said heat exchanger comprises ten heat exchanger blocks arranged in two rows of five blocks each.

16. (Previously Presented): A heat exchanger according to claim 1, wherein said heat exchanger comprises eight heat exchanger blocks arranged in two rows of four blocks

each.

17. (Previously Presented): A heat exchanger according to claim 8, wherein said first element comprises two plates secured to two opposites side of said heat exchanger block and said second element is a triangular plate.

18. (Previously Presented): In a heat exchanger comprising at least one heat exchanger block having an upper end and a lower end, an insulating vessel which surrounds the heat exchanger block, and pipes connected to said heat exchanger block for transporting fluids to and from said heat exchanger block, the improvement wherein said heat exchanger further comprises means for securing connected to the upper end of said heat exchanger block whereby said heat exchanger block hangs in said insulating vessel, and said means for securing means permits the lower end of said heat exchange block to move in at least two spatial directions and said heat exchange block can move freely above its center of gravity.

19. (Previously Presented): A heat exchanger comprising at least one heat exchanger block having an upper end and a lower end, an insulating vessel which surrounds said at least one heat exchanger block, pipes connected to the upper end and pipes connect to the lower end of said heat exchanger block for transporting fluids to and from said heat exchanger block, a first support plate attached to said heat exchange block at a first side of said upper end of said heat exchange block, a second support plate attached to said heat exchange block at a side opposite said first said of said upper end of said heat exchange block, and a third support plate attached to a support within said insulating box,

wherein said first and second support plates are pivotally attached to said third support plate whereby said lower end of said heat exchange block is free to pivot about an axis passing through the plane of said third support plate, and said third support plate is attached to said support by a joint which permits said third support plate and said heat exchange block to pivot about an axis perpendicular to the plane of said third support plate.

20. (Previously Presented): A heat exchanger according to claim 19, wherein said third support plate is a triangular plate.

21. (Previously Presented): A heat exchanger according to Claim 19, wherein said heat exchanger comprises at least two, heat exchanger blocks.

22. (Previously Presented): A heat exchanger according to Claim 21, comprising at least four heat exchanger blocks.

23. (Previously Presented): In a low-temperature air fractionation plant comprising a principal heat exchanger and at least one fractionation column, the improvement wherein said principal heat exchanger comprises:

at least one heat exchanger block having an upper end and a lower end, an insulating vessel which surrounds said at least one heat exchanger block, pipes connected to the upper end and pipes connect to the lower end of said heat exchanger block for transporting fluids to and from said heat exchanger block, a first support plate attached to said heat exchange block at a first side of said upper end of said heat exchange block, a second support plate attached to said heat exchange block at a side opposite said first said of said upper end of said heat exchange block, and a third support plate attached to a support within said insulating box,

wherein said first and second support plates are pivotally attached to said third support plate whereby said lower end of said heat exchange block is free to pivot about an axis passing through the plane of said third support plate, and said third support plate is attached to said support by a joint which permits said third support plate and said heat exchange block to pivot about an axis perpendicular to the plane of said third support plate.

24. (Cancelled):

EVIDENCE APPENDIX

Not Applicable.

RELATED PROCEEDINGS APPENDIX

Not Applicable.